



Original Articles

Why Do Blood Donors Lapse or Reduce Their Donation's Frequency?



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ABSTRACT

Finding effective ways to retain blood donors is crucial. This study seeks to compare, in a context of a voluntary and nonremunerated system, donor demographics and deterrents to blood donation among plasma/platelet donors (PPDs), regular whole blood donors (WBDs), and lapsed whole blood donors (LWBD). Among 1879 participants to a survey on motivations, time use, and blood donation, 207 WBDs (26%) and 148 PPDs (31%) said that they reduced their donation frequency over the last 5 years. Participants to this survey also included 609 LWBDs, who did not donate in the past 5 years. We asked about reasons why they reduce or cease to donate blood and demographic variables. χ^2 Tests were completed to determine which deterrents stand out across the 3 blood donor groups. The deterrent indicating the highest percentage was “time constraints related to work or studies” (43% for all respondents). Comparison of WBDs, LWBDs, and PPDs shows that results for 7 deterrents were statistically different between the 3 groups. Obstacles to donating blood also vary based on sex, age (life course), and level of education. Blood collection agencies should consider developing new retention strategies tailored to blood donors, taking into account the specific profiles of female/male donors, events that typically occur at various stages of life, and particular challenges associated with differences in levels of education.

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Four percent of Quebec citizens are registered in the province as blood donors [1]. In 2013 to 2014, only 6% of blood donors were registered as apheresis donors (9500), but they supplied 15% of all blood donations. In 2013 to 2014, the rate of self-sufficiency, based on nonremunerated donations, was only 14.5% [1]. Héma-Québec, the blood collection agency (BCA), is attempting to increase its degree of self-sufficiency by appealing to nonremunerated volunteer donors [2]. Eighty-six percent of the agency's blood supply is obtained through 2000 annual mobile drives held locally across the province, but apheresis donation is only offered at 5 fixed sites, in major cities or nearby suburbs. Apheresis donation differs in many ways from whole blood donation. In Québec, although a whole blood donor may donate once every 56 days, a plasma donor may donate every 6 days; and a platelet donor, every 14 days.

There has been previous research to compare barriers and obstacles to blood donation among regular, lapsed blood donors and non-donors [3–18]. The meta-analysis review produced by Bednall and Bove [4] on motivators and deterrents for donating blood showed that only 7 studies of 92 included plasma or platelet donors. Motivations were cited more frequently than deterrents; thus, the authors did not present separate data for whole blood and apheresis donors in this regard. Of the 16 studies, we found on barriers and obstacles to blood donation; only 4

[3,8,14,16] singled out apheresis donors. Moreover, 2 studies were conducted in countries where remuneration for apheresis is available.

In these 4 studies, main obstacles included time required for the process, accessibility of the center, excessive questioning/paperwork, eligibility requirements, and lack of knowledge about safety and process. Cessation of participation in plasmapheresis programs was mainly explained by the fact that the remuneration was no longer offered, time constraints, and relocation. Ringwald et al [16] also observed that women indicated anxiety of blood donation as reason for nonreturn more often than men.

According to the results of other research focusing on lapsed blood donors and/or nondonors [5–7,9–13,15,17–19], primary barriers and obstacles to blood donation included medical reasons, fear of needles, negligence, lifestyle barriers, perceived inconvenience, lack of marketing communication, lack of knowledge about donating, and negative experiences. Few researchers have cross-analyzed sociodemographic characteristics with deterrents for donating blood [5,6,11,17]. Studies showed that women cited medical reasons more often than men as a barrier for blood donation [5,15]. Misje et al [11] concluded that most of the sex differences in absence rates could be ascribed to pregnancy and lactation. Young people cited the lack of information, the lack of time and inconvenience, whereas older donors (46–55 years old) mentioned the lack of solicitation or medical reasons [5,17].

As noted by Bednall and Bove [4], few researchers have attempted to study apheresis donation in the context of volunteer nonremunerated donation. Our review of the existing work showed that even less research has examined the obstacles to blood donation, by taking into

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Table 1

Question on changes in blood donation practices over the past 5 years
Whole blood donors and plasma/platelet donors: Within the last 5 years, have you made blood donations less frequently? (check off one answer only) (a) yes; (b) no. If you answered yes to the previous question, would you say that this lower frequency of blood donation is related to some of the following reasons? (check off all answers that you consider relevant). Lapsed whole blood donors: You did not give blood in the past 5 years, would you say that this stop in blood donation is related to some of the following reasons? (check off all answers that you consider relevant)

Time use and blood donation questionnaire (Charbonneau and Cloutier, 2014) Question 11	References
Time constraints related to work or studies	[14,22]
Time constraints related to family responsibilities or taking care of children	[16,22]
Time constraints related to leisure or sport activities	[22]
Time constraints related to volunteer activities	[22]
Exclusion(s) as a result of traveling abroad	[16,17,19,22]
Health reasons related to childbirth (pregnancy, breast-feeding)	[11,12,18,22]
Other health reasons	[3,5,9,12,13,17,18,22,23]
Moving or being farther away from the blood drive you used to attend	[3,9,12,14,16–18,22]
Fear of needles or blood	[3,4,9,12,13,15,17,19,22,24–26]
A painful or difficult experience with having your blood drawn	[3,4,13–15,17,18,22]
The absence of a blood drive near the places that you regularly frequent	[3,12,17,22,25]
The difficulty of accessing the blood drive (parking or public transportation)	[3,8,11,14,22]
Volunteer or staff behavior at the blood drive	[3,4,14–18,22]
Too much time spent waiting or donating blood	[3,9,11,14–19,22]
Not enough information on blood drive locations and schedules	[5,9,22,25,26]
Blood drive too restrictive schedule	[3,7,9,11–13,15,16,18,19,22,25]
Loss of interest in this cause	[3,16,22]
Forgetting to donate or not receiving a telephone reminder from Héma-Québec	[3,16,22]
Other reason (specify)	
No reason in particular	

account the viewpoint of apheresis donors. The paramount importance of remuneration to donor motivation in 2 of these surveys means that their results cannot be applied to contexts in which donation is voluntary and nonremunerated.

In response to these gaps in the literature, this study seeks to better understand deterrents to blood donation among plasma/platelet donors (PPDs), regular whole blood donors (WBDs), and lapsed whole blood donors (LWBDs) and the relation between donor demographics and deterrents for blood donation.

Materials and Methods

Sample Selection

Donor sampling was done by accessing and extracting information from Héma-Québec's donor information system (Progesa). Three

groups of donors were defined based on their donation history: Current WBDs were those who had given 2 allogenic donations during their previous history and 1 donation during the 6 months preceding the survey; LWBDs were WBDs who did not donate in the past 5 years but who had donated once or more in the previous years; PPDs were those who had given 3 plasma or platelet donations during their previous history and 1 during the 6 months preceding the survey. Age (18 and 55 years old) and sex (women were oversampled for PPD because they are less often donors) were also taken into account.

The initial targeted number of respondents was 1250 subjects (50% men, 50% women): 500 regular WBDs, 500 LWBDs, and 250 regular PPDs. To achieve this target, 7000 donors were randomly selected from the database. The Progesa database contained only 1968 donors who met our criteria (453 women and 1515 men) for the selection of PPDs. From this pool, all the women were selected, and 547 men were randomly selected. Sampling was conducted on March 25, 2014. Full details of the methodology, the questionnaire development, and the survey procedures used are given elsewhere [20,21].

Questionnaire Development

Data were collected with a self-administered mailed questionnaire developed specifically for the study (available upon request to the authors). To formulate the questions about the reduction of blood donation frequency (WBD and PPD) and the reasons why LWBD ceased donating blood, we conducted a review of survey tools used by other researchers, including the meta-analysis by Bednall and Bove [4], as well as of the results presented in 17 separate studies (see Table 1). Interviewed individuals were given the opportunity to check off all answers that they consider relevant out of 20 when asked about motives for reducing their blood donation frequency or ceasing giving blood. They were not asked to indicate a chief motive or to rate their answers. The final version of the questionnaire consisted of 25 questions and took approximately 20 minutes to complete. Questionnaires were mailed based on language preference information in the donor information system (French, 6564; English, 436).

Survey Procedures

The initial questionnaire mail-out began on April 25, 2014. We received the last completed questionnaire on January 28, 2015. A total of 1972 questionnaires were returned fully or partially completed. A total of 1879 questionnaires were admissible for the analysis. The response rate was 40% for the WBD group (795/2000), 15% for the LWBD group (609/4000), and 48% for the PPD group (475/1000). Differential participation rates among lapsed and current donors are well known in the literature [10,27]. Overall, 207 WBDs (26%) and 148 PPDs (31%) said that they reduced the donation frequency over the last 5 years. Including the 609 LWBD questionnaires, analyses of barriers and deterrents to blood donation were performed using 964 admissible questionnaires (51% of the original data set).

Table 2

Comparison of demographic variables for WBDs, LWBDs, and PPDs responding to the questionnaire

	Total, n = 964	%	WBD, n = 207	%	LWBD, n = 609	%	PPD, n = 148	%	Significance (P)
Women	600	62	130	63	386	63	84	57	.32
Men	364	38	77	37	223	37	64	43	
18–29 y	185	19	51	25	99	16	35	24	<.0001
30–39 y	211	22	57	27	120	20	34	23	
40–56 y	568	59	99	48	390	64	79	54	
Elementary/high school	235	24	46	22	160	26	29	20	<.05
CEGEP ^a	354	37	91	44	205	34	58	39	
University	372	39	68	33	243	40	61	41	

^a In Quebec, CEGEP comes between high school and university and is comprised of professional technical programs (3 years) and general preuniversity programs (2 years).

Statistical Analysis

Data entry on ACCESS began in July 2014. Descriptive statistics were carried out for demographic variables and deterrents. Deterrents to donation were compared among the 3 groups using 2 × 3 χ² analysis. Analyses were performed with SAS version 9.4.

Results

The final sample had more respondent women in all 3 groups (P = .32) (Table 2). This differed from the original BCA panel of donors, where both WBD and LWBD proportions were almost equal (52% women, 48% men) and where women represented only 30% of PPD. Age distribution was similar for WBD and PPD, whereas LWBD had more respondents in the 40- to 56-year-old age groups compared to the 2 others (64% compared to 48% and 54%, respectively, for WBD and PPD). In comparison, the original BCA database counted a greater number of older donors in WBD and LWBD (44% and 54%, respectively) compared with PPD (29%). Most respondents were well educated (33% of WBD, 40% of LWBD, and 41% of PPD had university degrees), but a greater proportion of WBD had a Collège d'enseignement général et professionnel (CEGEP) degree only. We could not compare this variable with the BCA's broader panel because education level was only available in our questionnaire.

Table 3 presents the proportion of respondents in the 3 subsamples (WBD, LWBD, and PPD) who selected each of the deterrents. The deterrent with the highest percentage was “time constraints related to work or studies” (43% for all respondents). It is also the one with the highest percentage for 2 of the 3 groups (WBD: 49% and PPD: 55%).

Among the 20 deterrents included in the questionnaire, comparison of WBD, LWBD, and PPD shows that results for 7 of them were statistically different between the 3 groups (Table 3). A greater proportion of WBD selected “too much time spent waiting or donating blood” (28%), whereas PPD had the lowest proportion for this same deterrent (12%), despite longer donation time. As for PPD, 14% of them chose “time constraints related to leisure or sport activities” as one of their most important reasons to reduce their donation, almost twice the proportion of the 2 other groups. A similar proportion selected “moving or being farther away from the blood drive you used to attend” (15% WBD vs 6% LWBD). Finally, LWBD reported in greater proportion 3 different reasons: “other health reasons” (39% LWBD vs 27% for WBD and 29% for PPDs); “not enough information on blood drive locations and

schedules” (8% LWBD vs 5% for WBD and 1% for PPD); and “fear of needles or blood” (4% LWBD vs 0% for WBD and 1% for PPD).

The 3 demographic variables (sex, age group, and education) were represented at statistically different proportions among 12 common reasons for not donating. Table 4 presents the subcategories with the highest percentage for each reason to reduce/cease donation. For example, 77% of 18- to 29-year-olds in the PPD group reported that “time constraints related to work or studies” was one of the main reasons to reduce participation. Almost half of the 40- to 49-year-old WBDs, as many 30- to 39-year-old LWBDs and PPDs, and 35% of university-degree LWBDs chose “time constraints related to family responsibilities or taking care of children.” For LWBD, time constraints related to leisure or sport activity was reported significantly more often by men (12%) and among those 30 to 39 years of age (12%). Concerns over time spent waiting or donating blood was chosen more frequently by 40- to 49-year-old WBD (54%) and by LWBD with education at the CEGEP education level (29%). Women in the LWBD group chose “a painful or difficult experience with having your blood drawn” in greater proportion than men. The explanation “other health reasons” was more often chosen by female LWBD (42%) and PPD (37%), by 40- to 49-year-old PPD (59%), by 50- to 56-year-old LWBD (48%), and by LWBD with elementary or high school education (47%). Three different subgroups reported in greater proportion “moving or being farther away from the blood drive”: men WBD (12%), LWBD respondents aged 18 to 29 years (13%), and university-degree PPD (25%). In contrast, only university-degree LWBD chose “exclusion as a result of traveling abroad” in greater proportion. Three different subgroups rated “forgetting to donate or not receiving a telephone reminder” in greater proportion: male WBD (21%), LWBD (18%), and PPD (31%) respondents with an elementary or high school diploma. Finally, male LWBD respondents rated 2 other reasons in greater proportions: “blood drive too restrictive schedule” (11%) and “no reason in particular” (7%).

Discussion

This study reports results of a donor questionnaire designed to better understand the reasons why both WBDs and apheresis donors reduce their blood donation frequency over the years and why LWBDs cease donating blood altogether. We also found that donors give multiple reasons for reduced blood donation as shown by the fact that more than 40% of survey participants selected 3 or more reasons from the suggested list.

Table 3 Proportions of deterrents among WBDs, LWBDs, and PPDs who responded to the questionnaire

Reasons for reduction or cessation	WBD (n = 207)	LWBD (n = 609)	PPD (n = 148)	P	All donors (n = 964)
Time constraints related to work or studies	49%	38%	55%	<.0001	43%
Time constraints related to family responsibilities or taking care of children	29%	28%	25%	NS	28%
Time constraints related to leisure or sport activities	9%	8%	14%	<.05	9%
Time constraints related to volunteer activities	2%	1%	1%	NS	1%
Exclusion(s) as a result of traveling abroad	14%	14%	9%	NS	13%
Health reasons related to childbirth (pregnancy, breast-feeding)	12%	13%	8%	NS	12%
Other health reasons	27%	39%	29%	<.01	35%
Moving or being farther away from the blood drive you used to attend	6%	6%	15%	<.01	8%
Fear of needles or blood	0%	4%	1%	<.05	2%
A painful or difficult experience with having your blood drawn	5%	10%	8%	NS	9%
The absence of a blood drive near the places that you regularly frequent	14%	13%	9%	NS	12%
The difficulty of accessing the blood drive (parking or public transportation)	0%	0%	5%	NS	1%
Volunteer or staff behavior at the blood drive	3%	1%	1%	NS	2%
Too much time spent waiting or donating blood	28%	23%	12%	<.01	23%
Not enough information on blood drive locations and schedules	5%	8%	1%	<.01	7%
Blood drive too restrictive schedule	10%	8%	6%	NS	8%
Loss of interest in this cause	0%	2%	1%	NS	2%
Forgetting to donate or not receiving a telephone reminder from Héma-Québec	13%	12%	14%	NS	13%
Other reason (specify)	18%	18%	12%	NS	17%
No reason in particular	2%	4%	2%	NS	3%

Abbreviation: NS, not significant by χ² analysis.

Table 4
Among WBDs, LWBDs, and PPDs, the most common donor demographic is shown for each of 12 selected reasons for reducing or ceasing blood donation (rows)

	WBD	LWBD	PPD
Time constraints related to work or studies			18-29 (77%)*
Time constraints related to family responsibilities or taking care of children	40-49 (46%)*	30-39 (53%)* University (35%)* Men (12%)* 30-39 (12%)*	30-39 (47%)*
Time constraints related to leisure or sport activities		University (17%)* Women (20%)* 18-29 (33%)* Women (42%)* 50-56 (48%)* Elementary (47%)*	
Exclusion(s) as a result of traveling abroad		18-29 (13%)* Women (12%)* CEGEP (29%)* Men (11%)*	Women (14%)*
Health reasons related to childbirth (pregnancy, breast-feeding)	Women (19%)* 30-39 (32%)*	Elementary (18%)* Men (7%)*	Women (37%)* 40-49 (59%)*
Other health reasons			
Moving or being farther away from the blood drive you used to attend	Men (12%)*	18-29 (13%)* Women (12%)*	University (25%)*
A painful or difficult experience with having your blood drawn			
Too much time spent waiting or donating blood	40-49 (54%)*		
Blood drive too restrictive schedule			
Forgetting to donate or not receiving a telephone reminder from Héma-Québec	Men (21%)*		Elementary (31%)*
No reason in particular			

Demographic categories are described in Table 2.

* $P < .05$.

** $P < .01$.

*** $P < .0001$.

Reasons related to time constraints were selected by the greatest number of respondents, regardless of donor type. These results confirm findings by other researchers [3-5,9,11-17,19], who have highlighted the importance of lifestyle barriers as deterrents to blood donation. However, different profiles of response to the questionnaire were found among the 3 donor types (WBD, LWBD, and PPD). Lapsed whole blood donor cited medical reasons and lack of information most often. In addition, when asked to give “other reasons” for not donating, several of them reported annoyance at the need to complete the blood donor health questionnaire at each donation. This result suggests that institutional factors (eligibility requirements, including health and practical aspects) may influence donation habits [27-31]. Whole blood donor seemed more concerned by time constraints: work/study constraints, family responsibilities, and time spent waiting or donating blood were the main reasons reported. By comparison, PPD reported “time constraints related to leisure or sport activities,” “moving or being farther away from the blood drive I used to attend,” and “difficulty accessing the blood drive” as key reasons for reducing their donation practice. This serves to remind us that apheresis donation—which is more frequent, requires more time, and is more physically demanding—can be difficult for people to fit into their lives. We should also note that anyone who relocates far from the few permanent apheresis donation sites in Quebec is likely to reduce donating [14,16]. On the other hand, PPDs do not appear as influenced as the other donor groups by the time requirement for donating despite the fact that their donation process takes longer.

All participants (WBD, PPD, and LWBD) very rarely referred to “fear of needles” or “volunteer or staff behavior at the blood drive” as being reasons to justify changes in their blood donation practice. This finding is in contrast to other studies which have studied either nondonors or new donors, who cite these reasons as obstacles to blood donation [3,4,9,12,16,17,24].

Both men and women cited the same reasons for reducing the frequency of donations or ceasing to donate blood: work/family commitments, medical reasons, and waiting time. For women, medical reasons were most commonly cited. For example, having given birth to a child and viewing blood donation as “a painful or difficult experience” were common justifications also observed by other researchers [5,6,9,11,16,17,32,33]. Men seem to be more affected by the difficulty they had integrating blood donation into their busy lives: they were more likely than women to state that they found the schedules to be very restrictive and that they donate less frequently because of “too much time spent waiting or donating blood.” In addition, male WBDs

were the most likely, among WBDs and PPDs, to cite “forgetting to donate and not receiving a telephone reminder from Héma-Québec” as reasons for donating less frequently. This reinforces the idea that men have a more difficult time to establish a routine by themselves, a reason also frequently given in the “other reasons” category.

We noted differences among age groups [34-36], and a life course perspective may be useful in interpreting these results. Overall, a higher proportion of people in their 20s cited time constraints related to work/studies, exclusion(s) as a result of traveling abroad, and moving or being farther away from the blood drive. For people in their 30s, pregnancy and family responsibilities were more significant factors, and, for people in their 40s, health problems were more commonly cited than for other groups. These results are very much a reflection of events that typically occur at these different stages of life [22,34,36].

Overall, donors with an elementary or high school education were those most likely to cite health reasons to explain changes in their donation habits. It also appears that these donors rely the most on reminders from Héma-Québec, as well as those annoyed by the completion of the health questionnaire (as cited in “other reasons”). “Exclusion(s) as a result of traveling abroad” was an important reason cited by university LWBDs who presumably have greater access to international travel than donor with a lower educational achievement.

Possible Implications

For female donors, medical reasons including child birth were noted in this study and have been previously documented [5,6,9,11,16,17,32,33]. As Misje et al [11] suggested, improving the physical experience for female donors should be a priority for BCAs. Information could be directed to female donors explaining that they may continue to donate whole blood and plasmapheresis after a pregnancy, but that, in Quebec, their plasma will only be used for drug products such as albumin and immunoglobulins. Difficulty establishing a routine has also previously been shown to be a major obstacle during a blood donor’s career [37]. However, it has rarely been mentioned that this particular reason seems to affect men more often than it does women. To target retention of male donors, BCAs could consider specific strategies designed to help men better integrate blood donation into their daily routine. According to our analyses, obstacles to donating blood vary based on the donor’s age. Blood collection agencies may wish to develop donor retention strategies more carefully tailored to these different stages. Plasma/platelet donors who have reduced their donation frequency over the last 5 years were, by far, more likely to cite “time constraints related to

work/studies” and to report difficulty accessing donation sites as a cause. Logistics issues also ranked among the top reasons invoked in previous studies [3,14,16]. If the apheresis donation practice becomes too complicated, it might be preferable to redirect them to whole blood donation, which could effectively reduce several of these constraints.

Our study has several limitations and weaknesses. First, our study was conducted on a sample of blood donors in Quebec, Canada, whose reasons for reduced donation likely differ from those in other regions. Moreover, we chose to restrict our study to donors between the ages of 18 and 55 years. In addition, we combined plasma and platelet donors into 1 group, which increased the number of respondents to our survey. In Québec, donors increasingly make both plasma and platelet donations during the same appointment. Our results were also constrained by the fact that reasons for ceasing or reducing the frequency of blood donation were self-reported [38–40]. In addition, the statements which donors were asked to select in the questionnaire were nonstandard in formulation, which makes comparison of our results to those of other studies on the same topic difficult.

In conclusion, this donor questionnaire suggests that obstacles to donating blood vary based on sex, age, and level of education. A better understanding of the relation between donor demographics and deterrents for blood donation among PPDs, regular WBDs, and LWBDs should help BCAs develop new strategies to achieve the goal of donor self-sufficiency by increased retention of nonremunerated blood donors.

Conflicts of Interest

The authors declare that they have no conflicts of interest relevant to the publication of this paper.

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